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From the Author,
17, *Bloomsbury Square,*
London, W.C.

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THE

CHEMICAL NOMENCLATURE

OF THE

PHARMACOPŒIA.

WITH SUGGESTIONS FOR ITS REVISION.

BY PROFESSOR ATTFIELD.

LLEGE·OF·SURGEONS·OF·E

INCLUDING

OPINIONS ON THE PROPOSED SYSTEM,
BY CHEMICAL, MEDICAL AND PHARMACEUTICAL AUTHORITIES;

AND

ADDITIONAL REMARKS,
BY THE AUTHOR.

1871

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·OF·SURGEONS·OF·ENGLAND·

NOTE.

In reprinting this Paper for distribution to friends in Europe and America, the Author appended its discussion by Professors Frankland, Odling and Redwood, and extracts fi articles on the essay in the *Medical Times and Gazette*, *British Medical Journal*, *Lan* *Pharmaceutical Journal* and *Chemist and Druggist*, to show how unanimous is the opin amongst English chemical, medical and pharmaceutical authorities, that the nomencla selected should be the one adopted in medicine, pharmacy and future Pharmacopœias.

[*From the* Pharmaceutical Journal *for April 8th, 15th and 29th,* 1871.]

THE CHEMICAL NOMENCLATURE OF THE PHARMACOPŒIA.

WITH SUGGESTIONS FOR ITS REVISION.*

BY PROFESSOR ATTFIELD.

The vocabulary of technical terms, or nomenclature, of a pharmacopœia is chemical, botanical, zoological and galenical. In the following paper chemical nomenclature is alone considered.

Introductory remarks.—The chemical nomenclature of the current Pharmacopœias is mainly scientific, founded on theory, and therefore liable to change. Its one great fault, in relation to medicine and pharmacy, is mutability. A fault, and a great fault, because the life and health of people are largely dependent on the perfect understanding which should always subsist between physician and pharmacist respecting names of medicines which the former prescribes and the latter prepares. But it is a fault which cannot altogether be avoided. For a name is seldom given haphazard; it is commonly designed to express our ideas regarding a thing or substance, and as those ideas are developed and extended, our point of view or theory respecting them necessarily changes; the old name is no longer consistent with our knowledge, and must therefore be also changed. Moreover, there is a limit to the power of language, and desirable as may be a system of names for remedial agents which shall be fixed, abiding, permanent, the production of such a system in the present state of knowledge is altogether impossible. What, then, are pharmacists, medical practitioners and others to do when chemical names they have accepted on authority are, by the same authority, modified or abandoned? Within the last few years the views hitherto prevailing of the constitution of matter have undergone radical alteration, being no longer consistent with ascertained truths, and the nomenclature or language embodying those views has, of course, shared the fate of the theories. Under these circumstances, by what principles are we to be guided in adopting for medicine, pharmacy and the Pharmacopœia, such names as, on the one hand, shall be perfectly explicit, readily understood, unambiguous; and, on the other, consistent, or at least harmonious with prevailing chemical theories as expressed in the educational literature of the science? For not only is it to be remembered that changes must be expected in pharmacopœial names because we have already adopted and employ a nomenclature which, in the nature of things, is liable to change; but we must bear in mind that the successors to men now in practice are learning chemistry by aid of the new hypotheses, and their progress is impeded by old forms of language and by the erroneous notions which that language imparts. This state of things cannot continue; the march of science has ever been aided, never hindered by medicine or pharmacy. But what position are we to take in respect to this subject? The question is one that demands careful attention. I have endeavoured to answer it myself, and now venture to give to others the train of thought I have followed, and the conclusions at which I have arrived.

Outline of the paper.—I intend, firstly, to outline the history and present position of the chemical names already employed in Pharmacopœias, especially the British, and to glance at the causes of the recent revolution in chemical nomenclature; and to do so, not by way of aiding the followers of medicine to criticize matters purely chemical, but to enable them to arrive at sound conclusions respecting the application of modern chemical nomenclature to pharmacy. I shall then shortly allude to chemical notation, which is inseparably connected with my subject; mention disadvantages attending alterations in chemical names; state the functions and positive or negative qualities which names should possess; give a complete list of current pharmacopœial names, with the names now proposed, and their scientific synonyms; and finally refer to names requiring special or exceptional treatment.

History and present position of the chemical names of the Pharmacopœia.—The system of nomenclature hitherto accepted from chemists by pharmacists, practitioners in medicine and the public, that which is employed in European and American pharmacopœias, was mainly suggested by Lavoisier, eighty-four years ago. The fundamental principle on which it was founded was, that the name of a salt should express its composition. The many animal and vegetable substances discovered since that time (notably alkaloids and neutral crystalline principles) are designated, perhaps fortunately, by unsystematic names, names which, at all events, are not liable to change, and which may therefore be omitted from consideration in this paper. The great majority of chemical substances employed in pharmacy are such mineral salts as were known to Lavoisier, and their names were mostly given on the assumption that they contained, on the one hand, an undecomposable body, generally a metal, common to a whole class of salts (the compounds of *copper*, for example), and on the other, a body, or a group of elements, also common to a number of salts (*sulphates*, for example). Soda, potash, lime, baryta, magnesia and alumina were then considered to be elements; hence, as I shall further show presently, such names as carbonate of soda, nitrate of potash and sulphate of baryta were perfectly consistent with those of carbonate of iron, nitrate of mercury, sulphate of copper. During the twenty years succeeding 1787, Lavoisier's views of the constitution of salts and the language or nomenclature in which they gradually found expression, were generally accepted throughout Europe. Green vitriol, blue vitriol, Glauber's salt and gypsum, for example, were considered to contain, on the one hand, the "elements" iron, copper, soda, and lime respectively, and, on the other, a group of elements common to each of the four compounds; the four different elements were indicated in the spoken and written nomenclature of the compounds by their four names, 'iron, copper, soda, lime,' while the one group and its presence in each of the four compounds was indicated in the spoken and written nomenclature of the compounds by the word 'sulphate'; sulphate of iron, sulphate of copper, sulphate of soda, sulphate of lime. This change from such trivial names as green vitriol, blue vitriol, Glauber's salt and gypsum to the systematic chemical names sulphate of iron, sulphate of copper, sulphate of soda, sulphate of lime, seems to have been effected without much opposition. At that time comparatively few persons were interested in, or affected by the matter, and radical changes of this kind are made with less difficulty by the few than the many. Afterwards it was felt that the multiplication of chemical substances by discovery rendered adherence to a trivial and arbitrary nomenclature impossible, and the adoption of Lavoisier's scientific idea imperative. Lavoisier got the world out of a difficulty, not placed it in one, when he introduced the principle of scientific nomenclature.

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* Read at the Evening Meeting of the Pharmaceutical Society of Great Britain, April 6, 1871; G. W. Sandford, Esq., President, in the chair.

Up to 1807 no necessity arose for interfering with the nomenclature of Lavoisier; but in that and the following year Davy made his brilliant researches on the alkalies and alkaline earths, discovered that potash, soda, baryta, strontia and lime were not elements, as previously had been supposed, but that the true basylous radicals of the so-called compounds of potash, soda, baryta, strontia and lime were metals—to which were given the names potassium, sodium, barium, strontium and calcium. Thenceforward the old names potash, soda, baryta, strontia, lime, were used to designate the oxides of the new metals. Then at once there arose a dilemma in regard to nomenclature. The names of all the salts of Davy's metals were no longer consistent with the names of the salts of all other metals. While on the one hand the names 'sulphate of copper' and 'sulphate of iron' distinctly expressed the compounds formed by the union of metallic 'copper' or metallic 'iron' with a common acidulous group of elements, represented by the word 'sulphate,' the names 'sulphate of soda' and 'sulphate of lime' as distinctly expressed compounds formed by the union of oxide of sodium and oxide of calcium with a common acidulous radical still indicated by the word 'sulphate,' but not having the same composition as (having less oxygen than) the similar acidulous radical united with the copper and the iron. It was felt that either such words as sulphate, nitrate and carbonate must each have two significations, and the salts of the alkalies and alkaline earths be considered as compounds of oxides of metals, and all other salts (sulphate of iron, etc.) as compounds of metals, or such words (sulphate, nitrate, carbonate, etc.) must have a common (though an altered) signification, and all oxygen salts be considered as compounds of oxides of metals. Davy, supported afterwards by Dulong, Clark, Graham, Liebig and Daniell, suggested that *all* metallic salts were composed of metal alone on the basylous side, and a distinct radical on the acidulous side. Unfortunately, however, accurate knowledge of constitution was included in this idea; even definite names being proposed for the said acidulous radicals. Thus blue vitriol was termed oxysulphionide of copper (Daniell), sulphatoxide of copper (Graham) and sulphanide of copper (Otto). Many other objections to the theory arose, and hence salts came to be regarded as compounds of oxides of metals with certain acidulous radicals (now known as anhydrides). But the followers of applied chemistry never took kindly to the nomenclature; such names as sulphate of oxide of iron, nitrate of oxide of silver, acetate of oxide of lead, got shortened to sulphate of iron, nitrate of silver, acetate of lead; a matter of no great moment to any one who had become a chemist, but of considerable importance to every one learning to be a chemist. The names acetate of lead, iodide of lead, etc., logically planted in the mind the impression that the compounds were formed of lead with the radical of acetates and lead with the radical of iodides,—a natural idea, which had to be unlearned, and by considerable effort of memory a mere conventional one put in its place, namely, that certain acidulous radicals (iodine, sulphur, etc.) combined with metals, while certain others (anhydrides, formerly called acids) with oxides of metals. Again, that a yellow granular precipitate, caused by the addition of perchloride of platinum to a liquid sometimes indicated potassium and sometimes potash, or that a certain black coloration sometimes indicated lead and sometimes oxide of lead, were illogical statements against which the mind naturally rebelled. It is true an explanation was afforded of such anomalies by the assumption that even haloid salts (such as iodide of potassium) on dissolving in water became true salts of oxides of metals (hydriodate of potash); but weighty arguments were adducible against this hypothesis. In short, no theory of the constitution of salts was offered, or has yet been offered, which satisfactorily explains and harmonizes all known facts respecting salts. Hence, when a very few years ago chemists were led by irresistible arguments and stubborn facts to double many of the old atomic weights, an opportunity of abandoning existing constitutional theories then presented itself, and was by common consent accepted. The exertions of Dumas, Laurent and Gerhardt bore fruit. The dualistic idea of salts being formed of an acidulous radical with the oxide of a metal, and the not less binary notion of their being composed of a distinct acidulous radical united with a metal, were renounced, and hypothesis altogether rejected, or, at all events, restricted to the idea of *oneness*. These views were, of course, accompanied by a commensurate alteration in chemical notation and nomenclature. Blue vitriol no longer being considered to be the sulphate of the oxide of copper, as shown in the formula CuO, SO_3, nor even to have the binary constitution implied in the formula Cu, SO_4, but to be a structure *per se*, or, at least, one whose detail of constitution was unknown,—it became necessary to devise for it and all such salts, a notation and nomenclature which should be consistent with the unitary idea. Strictly speaking, this was impossible. The relationship, nay, the absolute identity of the constituent radicals in whole classes of salts demanded fair representation in notation and nomenclature, a result fatal to pure unitary ideas. Thus, the unquestioned relationship of the cupreous compounds to each other demanded the employment of the word 'copper' in their names and the symbol Cu in their formulæ; while the unquestioned relationship of salts containing the elements which occur in the non-cupreous portion of blue vitriol demanded the employment of the word "sulphate" in their names and the symbols SO_4 in their formulæ, and with the employment of such names and such formulæ the binary idea is difficult to repress. At the same time all are agreed that the unqualified assumption of knowledge of chemical constitution involved in the old binary theories is wrong, hence professedly binary systems of notation and nomenclature must be relinquished; the names sulphate of oxide of copper, with its formula CuO, SO_3, and sulphate of oxide o magnesium (or sulphate of magnesia), with its formula MgO, SO_3, must be given up for sulphate o copper $CuSO_4$ (or copper sulphate or cupric sulphate), and sulphate of magnesium $MgSO_4$ (or magnesium sulphate). Such names and formulæ sufficiently exhibit unquestioned relationships, while the include the least possible amount of theory.

Chemical Notation.—I would offer a few additional sentences respecting chemical notation. Al teachers of chemistry, including the authors of nearl every modern manual, with remarkable unanimit have relinquished the old system of notation, tha which was exclusively employed in the British Pharmacopœia of 1864, and have, to a greater or less extent, adopted the new. In the present (1867) Pharmacopœia the new notation is represented by formulæ printed in Egyptian type (**KNO_3**), the old b formulæ in Roman (KO, NO_5); a course suggeste by the unsettled condition of the subject at the tim this Pharmacopœia was published. It is to be expected that the next British Pharmacopœia—stil "representing accurately, yet with caution, the advancement made in chemistry and pharmacy" (*vid* Preface), and reflecting the settled practice of scientific chemists—will employ the usual chemical symbols as expressive of the new atomic weights ($O = 16$ to the exclusion of the old ($O = 8$), and will altogether discard the hypothesis of the constitution o salts involved in such formulæ as KO, NO_5, or (accepting the new atomic weights) K_2O, N_2O_5, usin only the less theoretical formulæ (*e.g.* KNO_3) whic are now employed by the majority of teachers. Th following formulæ will further illustrate what ha just been stated :—

Old and New Chemical Formulæ.

	Old atomic weights and dualistic hypothesis.	Old atomic weights and binary hypothesis.	New atomic weights with dualistic hypothesis.	New atomic weights with binary hypothesis.	New atomic weights with unitary hypothesis.
Nitre	KO, NO_5	K, NO_6	K_2O, N_2O_5	K, NO_3	KNO_3
Pearlash (anhydrous) . . .	KO, CO_2	K, CO_3	K_2O, CO_2	K_2, CO_3	K_2CO_3
Epsom salt (anhydrous) . .	MgO, SO_3	Mg, SO_4	MgO, SO_3	Mg, SO_4	$MgSO_4$
Corrosive sublimate	$HgCl_2$ and $HgCl$	$HgCl_2$ and $HgCl$	$HgCl_2$	$HgCl_2$	$HgCl_2$

Old atomic weights . . . . K, 39; Mg, 12; Hg, 200 and 100; N, 14; O, 8; C, 6; S, 16: Cl, 35·5.
New atomic weights . . . . K, 39; Mg, 24; Hg, 200; N, 14; O, 16; C, 12; S, 32; Cl, 35·5.

Little more need be said in favour of the exclusive employment of modern chemical notation in future British Pharmacopœias. Arguments for or against the atomic and other theories and hypotheses concerning the constitution of salts on which this notation is based would be out of place in this paper. The old system is given up by chemists; the new is already officially recognized by the Council under whose authority the Pharmacopœia is issued, and by the various examining Boards,* and is adopted in educational works on chemistry.

These are sufficient reasons for justifying us i the expectation of seeing the new notation, if an alone employed in the third British Pharmacopœia This much on chemical notation it was desirable t state; for it is inseparably connected with the chemical nomenclature of a Pharmacopœia. Indeed, notation and nomenclature should obviously harmoniz seeing that they are simply different methods of expressing the thoughts and wants of everybody respecting chemical substances. Formulæ are mor comprehensive than names, and convey to the min far more information, but they are intelligible only to the educated chemist. Names comprise less knowledge, but are more or less understood by all and suffice for general purposes. To formulæ, however, we look to ascertain the views of chemists concerning the constitution of chemical compounds, and it is on these views that chemical nomenclature is founded.

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* EXTRACTS FROM LETTERS TO THE AUTHOR.

Royal College of Physicians, London. "I am instructed to say that the Examiners here accept either notation. While themselves adopting the new, they are unwilling to jeopardize the chances of those who have been educated and accustomed to the old."—Henry Moody, Secretary.

Royal College of Surgeons, London. "Only in the Preliminary Examination is chemistry included. The new system of notation is adopted by the Examiners."—Edward Trimmer Secretary.

The Society of Apothecaries, London. "Candidates ar allowed to use the old or the new notation, according as the have been instructed."—R. H. Robertson, Secretary.

The Pharmaceutical Society of Great Britain. "The *new* notation is recognized by the Board, but candidates havin an imperfect knowledge of this system are not rejected if the possess a sufficient acquaintance with the *old* notation."—Elias Bremridge, Secretary.

Disadvantages attending alterations in Nomenclature.—Thus far have I endeavoured to outline the progress of chemistry in those directions which affect chemical nomenclature, those which suggest modification in the chemical names of pharmacopœial substances. Such names as nitrate of potash and sulphate of magnesia are unwarrantably theoretic and not now current in chemical literature. How can these and similar names be modified, and to what extent must modification be carried? Before answering the question and proposing a modified system of nomenclature, I would allude to (*a*) the alteration of chemical names as involving disadvanages, and (*b*) the properties of names. The disadvanages are obvious, unquestionable, and to be avoided whenever practicable. Scientific chemists, those with whom originate new discoveries of specific and generic truths, meet with these difficulties to a very mall extent. Modification and extension of mental views respecting the constitution of chemical compounds are necessarily accompanied by modification nd extension of the language in which those views re expressed; hence alterations in chemical nomenclature are naturally met with in the original memoirs ccording new discoveries. Indeed, altered nomenclature is advantageous, rather than the opposite, while confined to the literature of original research, or it assists the mind in comprehending new truths. But such restriction is only possible for a time. Each additional discovery, whether relating to old ubstances or new, gives additional impetus to the ver-advancing waves of knowledge until the old andmarks have to be removed or relinquished, nd reconstruction becomes inevitable. Here commence difficulties; for while alteration in language is asy and convenient to followers of pure science, ecause a natural consequence of altered mental views, it is excessively troublesome and inconvenient o the followers of applied science, who have to enertain the alterations first and the reasons afterards.

More than this, most serious consequences have ometimes resulted to patients from one medicine eing substituted for another, solely through variaon in nomenclature. But I need say nothing furer on this head; it has already been adverted to the commencement of this paper, and has been lly and ably treated, either specially or incidenlly, by the following writers on pharmacopœial omenclature:—

PHARMACEUTICAL JOURNAL: Jacob Bell, Dr. Paris, r. Pereira, Vol. II., 1st Ser., pp. 369–374; Mr. E. hompson, Vol. VIII., 1st. Ser., p. 3; Mr. A. F. aselden, Vol. I., 2nd Ser., p. 112; "C. W. M." and e well-known initials "C. W. Q.," Vol. III., 2nd r., p. 335; Professor Redwood, Vol. VI., 2nd Ser., 566; in Vol. VII., 2nd Ser., "On the Vegetable ugs," by Mr. Daniel Hanbury, p. 96; Mr. Henry ane, p. 101; Mr. Proctor, p. 381; Mr. T. Lowe, 409; Mr. J. C. Brough, Vol. VIII., 2nd Ser., 214; Mr. J. C. Wilson, Vol. IX., 2nd Ser., p. 363.

Properties of Names.—The names of pharmacopœial chemicals should fulfil certain functions or possess definite qualities, positive or negative, namely,—

1. The name should, as far as possible and practicable, indicate composition. This Lavoisierian principle is, as I have already shown, one of necessity as well as expediency.

2. One name should be associated with only one substance; but the converse I would by no means urge, namely, that one substance should be known by only one name, synonyms being useful both from a theoretical and a practical point of view.

3. A name, even if fallen out of use, should not be transferred to a substance having properties different from the original substance.

4. The name of an official chemical substance, that is, a name officially recognized in national pharmacopœias, should possess the minimum of instability. This quality is most important. Verbal changes of almost any kind are unpopular; changes in chemical nomenclature have done much to retard the progress of chemistry amongst the people; but changes in the names of pharmacopœial chemicals are objectionable in the interests of medical practitioners, their patients and pharmacists.

The free employment of Latin and Greek numerals in a chemical name was strongly advocated by the late Professor Miller. But though highly useful in general chemical literature for indicating details of composition, the principle is too dependent on hypothesis respecting atomic values and weights, and too susceptible of disturbance caused by new discoveries to possess the element of permanence; hence it must be avoided in pharmaceutical chemistry.

5. A pharmacopœial name should admit of being either easily spoken or written, both in the full and in the contracted form, in modern languages and in Latin.

6. When close resemblance between two salts is indicated by identity in all but one of the syllables of their names, that syllable should be at the commencement of the names and not at the end, where it would be liable to be omitted by a prescriber. Indeed, such variations are often indicated with most usefulness by a separate word altogether, confusion and even mischief being thereby avoided. Thus, for calomel and corrosive sublimate the names *subchloride of mercury* and *perchloride of mercury* are greatly to be preferred to *mercurous chloride* and *mercuric chloride*; for a physician, in writing a prescription, would contract the former to *hydr. subchlor.* and *hydr. perchlor.*, which are still sufficiently distinctive, while the others would *both* be liable to be contracted to *hyd. chlor.*, and a patient perhaps be killed by corrosive sublimate instead of cured by calomel. So *green iodide of mercury* and *red iodide of mercury* are better than *mercurous iodide* and *mercuric iodide*, or *green sulphate of iron* and *persulphate of iron* to *ferrous sulphate* and *ferric sulphate*; any greater precision that may be desired being given by chemical formulæ.

7. A name should not be changed for mere purpose of euphony, real or fancied; thus, chlorhydric for hydrochloric.

8. Names of pharmacopœial chemicals should be consistent with each other.

9. The chemical names employed in pharmacy should be consistent with those used in other branches of applied chemistry, and with the lan-

guage of scientific chemistry and general chemical literature. I say consistent, certainly not identical. *For I believe the time has come when, by making a few slight alterations in the terminations of a few of our chemical names, we shall have a system of pharmaceutical nomenclature which, while perfectly harmonious with, is quite independent of, scientific chemical nomenclature, and which therefore contains greater elements of permanence than any yet adopted.* These alterations, be it noted, are in the terminations of tho names only; hence the contracted names almost universally used by physicians and pharmacists would in no way be interfered with,—an argument which, if somewhat left-handed, must be admitted to be one of great strength.

The proposed Names.

The following is a table of names of all the chemical substances in the British Pharmacopœia. Column I. contains the official names; Column II. the names now suggested for employment in pharmacy, medicine and the next edition of the British Pharmacopœia; Column III. the unitary nomenclature of modern chemistry. The advantages claimed for the proposed names are that they are more consistent with each other than the old; they are formed on one uniform system instead of two; they include less of theory, and therefore have greater elements of stability than the old; and they are harmonious, whilst the old is absolutely inconsistent, with both modern scientific nomenclature and the only chemical notation now employed. Their newness, so far as they are new, is their only disadvantage, and even this disadvantage is, in practice, reduced to insignificant proportions.

Column II. also contains a few exceptional alterations, to which I shall allude subsequently.

Old Names.	*Proposed Names.*	*Synonyms.*
Acetate of ammonia.	Acetate of *ammonium.*	*Ammonium acetate.* *Ammonic acetate.*
Acetate of copper.	Acetate of copper.	*Cupric acetate.*
Acetate of iron.	Acetate of iron.	*Ferric acetate.*
Acetate of lead.	Acetate of lead.	*Lead acetate.* *Plumbic acetate.*
Acetate of morphia.	Acetate of morphia.	*Morphia acetate.*
Acetate of potash.	Acetate of *potassium.*	*Potassium acetate.* *Potassic acetate.*
Acetate of soda.	Acetate of *sodium.*	*Sodium acetate.* *Sodic acetate.*
Acetate of zinc.	Acetate of zinc.	*Zinc acetate.*
Acetic acid.	Acetic acid.	*Hydrogen acetate.* Acetic acid.
Acid tartrate of potash.	Acid tartrate of *potassium.*	*Acid potassium tartrate.*
Aconitia.	Aconitia.	Aconitia, *or aconitine.*
Albumen.	Albumen.	Albumen.
Alcohol.	Alcohol.	*Ethyl hydrate.* Alcohol, *or ethyl alcohol.*
Alum.	Alum.	Alum.
Ammonia.	Ammonia. *Hydrate of ammonium (syn.).*	Ammonia. *Ammonium hydrate.*
Ammoniated mercury.	Ammoniated mercury.	*Mercuric-ammonium chloride.*
Ammonio-nitrate of silver.	Ammonio-nitrato of silver.	*Argent-ammonium nitrate.*
Ammonio-sulphate of copper.	Ammonio-sulphate of copper.	*Cupro-diammonium sulphate.*
Ammonio-sulphate of magnesia.	Ammonio-sulphate of *magnesium.*	*Ammonio-magnesian sulphate.*
Amylic alcohol.	Amylic alcohol.	*Amyl alcohol.*
Arseniate of iron.	Arseniate of iron.	*Ferrous arsenate.*
Arseniate of soda.	Arseniate of *sodium.*	*Sodium arsenate.*
Arsenious acid.	*White arsenic.*	*Arsenious oxide.*
Atropia.	Atropia.	Atropia, *or atropine.*
Benzoate of ammonia.	Benzoate of *ammonium.*	*Ammonium benzoate.*
Benzoic acid.	Benzoic acid.	*Hydrogen benzoate.* Benzoic acid.
Benzol.	Benzol.	*Benzene or Benzine.*
Bicarbonate of potash.	Bicarbonate of *potassium.*	*Acid potassium carbonate.* *Hydrogen potassium carbonate.* *Mono-potassic carbonate.*
Bicarbonate of soda.	Bicarbonato of *sodium.*	*Acid sodium carbonate.* *Hydrogen sodium carbonate.* *Mono-sodic carbonate.* *Hydro-sodic carbonate.*
Bichromate of potash.	*Red chromate of potassium.*	*Potassium anhydrochromate.* *Potassium bichromate.*
Bismuth.	Bismuth.	Bismuth.
Black antimony.	Black *sulphide of* antimony.	*Antimonious sulphide.*
Black oxide of manganese.	Black oxide of manganese.	*Manganese dioxide or peroxide.*
Boracic acid.	Boracic acid.	*Hydrogen borate.* *Boric acid.* Boracic acid.
Borax.	Borax.	*Sodium anhydroborate.* Borax.
Bromide of ammonium.	Bromide of ammonium.	*Ammonium bromide.*

Old Names.	*Proposed Names.*	*Synonyms.*
Bromide of potassium.	Bromide of potassium.	*Potassium bromide.*
Bromine.	Bromine.	Bromine.
Calomel (syn.).	Calomel (syn.).	*Mercurous chloride.* Calomel.
Camphor.	Camphor.	Camphor.
Carbolic acid.	Carbolic acid.	*Hydrogen carbolate.* Carbolic acid.
Carbonate of ammonia.	Carbonate of *ammonium.*	*Ammonium carbonate.*
Carbonate of bismuth.	*Oxycarbonate* of bismuth (syn.).	*Bismuth oxycarbonate.*
Carbonate of iron.	Carbonate of iron.	*Ferrous carbonate.*
Carbonate of lead.	Carbonate of lead.	*Lead carbonate.* *? Triplumbic dihydrate dicarbon*
Carbonate of lime.	Carbonate of *calcium.*	*Calcium carbonate.*
Carbonate of lithia.	Carbonate of *lithium.*	*Lithium carbonate.*
Carbonate of magnesia.	Carbonate of *magnesium.*	*Magnesium carbonate.* *? Tetrahydrous dihydric tetram nesic tricarbonate.*
Carbonate of potash.	Carbonate of *potassium.*	*Dipotassic carbonate.* *Potassium carbonate.*
Carbonate of soda.	Carbonate of *sodium.*	*Disodic carbonate.* *Sodium càrbonate.*
Carbonate of zinc.	Carbonate of zinc.	*Zinc carbonate.*
Caustic potash.	Caustic potash. *Hydrate of potassium (syn.).*	Caustic potash. *Potassium hydrate.*
Caustic soda.	Caustic soda. *Hydrate of sodium (syn.).*	Caustic soda. *Sodium hydrate.*
Chalk.	Chalk.	*Calcium carbonate.* Chalk.
Chlorate of potash.	Chlorate of *potassium.*	*Potassium chlorate.*
Chloride of ammonium.	Chloride of ammonium.	*Ammonium chloride.*
Chloride of antimony.	Chloride of antimony.	*Antimony trichloride.* *Antimonious chloride.*
Chloride of barium.	Chloride of barium.	*Barium chloride.* *Baric chloride.*
Chloride of calcium.	Chloride of calcium.	*Calcium chloride.* *Calcic chloride.*
Chloride of gold.	*Per*chloride of gold.	*Auric chloride.*
Chloride of sodium.	Chloride of sodium.	*Sodium chloride.*
Chloride of tin.	*Stannous chloride.*	*Stannous chloride.*
Chloride of zinc.	Chloride of zinc.	*Zinc chloride.*
Chlorinated lime.	Chlorinated lime.	*Chloride of lime.*
Chlorinated soda.	Chlorinated soda.	*Chloride of soda.*
Chlorine.	Chlorine.	Chlorine.
Chloroform.	Chloroform.	*Methenyl chloride.* Chloroform.
Citrate of ammonia.	Citrate of *ammonium.*	*Ammonium citrate.*
Citrate of bismuth and ammonia.	Citrate of bismuth and *ammonium.*	*Bismuth ammonio-citrate.* *Ammonium and bismuthous citra*
Citrate of iron and ammonia.	Citrate of iron and *ammonium.*	*Ferric ammonio-citrate.* *Ferric and ammonium citrate.*
Citrate of iron and quinia.	Citrate of iron and quinia.	*Ferric quinio-citrate.* *Quinia ferri-citrate.* *Ferric and quinia citrate.*
Citrate of lithia.	Citrate of *lithium.*	*Lithium citrate.*
Citrate of potash.	Citrate of *potassium.*	*Potassium citrate.*
Citric acid.	Citric acid.	*Hydrogen citrate.* Citric acid.
Citro-tartrate of soda.	Citro-tartrate of *sodium.*	*Sodium citro-tartrate.*
Conia.	Conia.	Conia *or conine.*
Copper.	Copper.	Copper.
Corrosive sublimate (syn.).	Corrosive sublimate (syn.).	*Mercuric chloride.* Corrosive sublimate.
Digitalin.	Digitalin.	Digitalin.
Dried alum.	Dried alum.	Dried alum.
Dried carbonate of soda.	Dried carbonate of *sodium.*	Dried *sodium carbonate.*
Dried sulphate of iron.	Dried sulphate of iron.	Dried ferrous sulphate.
Ether.	Ether.	*Ethyl oxide.* Ether.
Ferrocyanide of potassium (syn.).	Ferrocyanide of potassium.	*Potassium ferrocyanide.*
Gallic acid.	Gallic acid.	*Hydrogen gallate.* Gallic acid.
Gelatine.	Gelatine.	Gelatin.
Glycerine.	Glycerine.	*Propenyl alcohol.* Glycerin.
Granulated sulphate of iron.	Granulated sulphate of iron.	Granulated *ferrous sulphate.*
Hydrated peroxide of iron.	*Peroxyhydrate of iron.*	*Ferric oxyhydrate.*

Old Names.	*Proposed Names.*	*Synonyms.*
Hydrochlorate of morphia.	Hydrochlorate of morphia.	*Morphine hydrochlorate.*
Hydrochloric acid.	Hydrochloric acid.	*Hydrogen chloride.* *Chlorhydric acid.* Hydrochloric acid.
Hydrochloric sol. of arsenic.	Hydrochloric sol. of arsenic.	Hydrochloric sol. of arsenic.
Hydrocyanic acid.	Hydrocyanic acid.	*Hydrogen cyanide.* Hydrocyanic acid.
Hyposulphite of soda.	Hyposulphite of *sodium.*	*Sodium hyposulphite.*
Indigo.	Indigo.	Indigo.
Iodate of potash.	Iodate of *potassium.*	*Potassium iodate.*
Iodide of cadmium.	Iodide of cadmium.	*Cadmium iodide, or cadmic iodide.*
Iodide of iron.	Iodide of iron.	*Ferrous iodide.*
Iodide of lead.	Iodide of lead.	*Lead iodide, or plumbic iodide.*
Iodide of mercury, green.	Iodide of mercury, green.	*Mercurous iodide.*
Iodide of mercury, red.	Iodide of mercury, red.	*Mercuric iodide.*
Iodide of potassium.	Iodide of potassium.	*Potassium iodide.*
Iodide of sulphur.	Iodide of sulphur.	*Sulphur iodide.*
Iodine.	Iodine.	Iodine.
Iron.	Iron.	Iron.
Lime.	Lime.	*Calcium monoxide.* Lime.
Magnesia.	Magnesia.	*Magnesium oxide.* Magnesia.
Magnetic oxide of iron.	Magnetic *oxyhydrate* of iron (syn.).	*Ferroso-ferric oxyhydrate.*
Mercury.	Mercury.	Mercury.
Mercury with chalk.	Mercury with chalk.	Mercury with chalk.
Moist peroxide of iron.	Moist *perhydrate* of iron.	*Ferric hydrate.*
Nitrate of lead.	Nitrate of lead.	*Lead nitrate.*
Nitrate of mercury.	*Per*nitrate of mercury.	*Mercuric nitrate.*
Nitrate of potash.	Nitrate of *potassium.*	*Potassium nitrate.*
Nitrate of silver.	Nitrate of silver.	*Argentic nitrate.* *Silver nitrate.*
Nitrate of soda.	Nitrate of *sodium.*	*Sodium nitrate.*
Nitric acid.	Nitric acid.	*Hydrogen nitrate.* Nitric acid.
Nitro-hydrochloric acid.	Nitro-hydrochloric acid.	Nitro-hydrochloric acid.
Nitrous ether, spirit of.	Nitrous ether, spirit of.	*Ethyl nitrite, spirit of.* Nitrous ether, spirit of.
Oxalate of ammonia.	Oxalate of *ammonium.*	*Ammonium oxalate.*
Oxalate of cerium.	Oxalate of cerium.	*Cerous oxalate.*
Oxalic acid.	Oxalic acid.	*Hydrogen oxalate.* Oxalic acid.
Oxide of antimony.	Oxide of antimony.	*Antimony trioxide.* *Antimonious oxide.*
Oxide of iron, magnetic.	*Oxyhydrate* of iron, magnetic (syn.).	*Ferroso-ferric oxyhydrate.*
Oxide of lead.	Oxide of lead.	*Lead oxide, or plumbic oxide.*
Oxide of mercury, red.	Oxide of mercury, red.	*Mercuric oxide.*
Oxide of silver.	Oxide of silver.	*Silver monoxide.* *Argentic oxide.*
Oxide of zinc.	Oxide of zinc.	*Zinc oxide.*
Perchloride of iron.	Perchloride of iron.	*Ferric chloride.*
Perchloride of mercury.	Perchloride of mercury.	*Mercuric chloride.*
Perchloride of platinum.	Perchloride of platinum.	*Platinum tetrachloride.* *Platinic chloride.*
Permanganate of potash.	Permanganate of *potassium.*	*Potassium permanganate.*
Pernitrate of iron.	Pernitrate of iron.	*Ferric nitrate.*
Peroxide of iron, hydrated.	*Peroxyhydrate of iron (syn.).*	*Ferric oxyhydrate.*
Peroxide of iron, moist.	*Perhydrate of iron, moist.*	*Ferric hydrate.*
Persulphate of iron.	Persulphate of iron.	*Ferric sulphate.*
Phenic acid (syn.).	Phenic acid (syn.).	*Hydrogen phenate.* Phenic acid.
Phosphate of ammonia.	Phosphate of *ammonium.*	*Ammonium phosphate.*
Phosphate of iron.	Phosphate of iron.	*Ferrous phosphate.*
Phosphate of lime.	Phosphate of *calcium.*	*Calcium orthophosphate.*
Phosphate of soda.	Phosphate of *sodium.*	*Disodiohydric phosphate.*
Phosphoric acid.	Phosphoric acid.	*Hydrogen phosphate.* Phosphoric acid.
Phosphorus.	Phosphorus.	Phosphorus.
Platinum.	Platinum.	Platinum.
Potash, solution of.	Potash, solution of.	Potash, solution of.
Prussiate of potash, red.	? Prussiate of *potassium*, red.	*? Red potassium prussiate.*
Prussiate of potash, yellow.	? Prussiate of *potassium*, yellow.	*? Yellow potassium prussiate.*
Reduced iron.	Reduced iron.	*Reduced iron.*
Santonin.	Santonin.	*Santonin.*
Slaked lime.	Slaked lime.	*Calcium hydrate.* Slaked lime.

Old Names.	*Proposed Names.*	*Synonyms.*
Soda, solution of.	Soda, solution of.	Soda, solution of.
Starch.	Starch.	Starch.
Strychnia.	Strychnia.	Strychnine.
Subacetate of copper.	*Oxyacetate* of copper (syn.).	*Cupric oxyacetate.*
Subacetate of lead.	*Oxyacetate* of lead (syn.).	*Basic lead acetate.* *Lead oxyacetate.*
Subchloride of mercury.	Subchloride of mercury.	*Mercurous chloride.*
Subnitrate of bismuth.	*Oxynitrate* of bismuth (syn.).	*Basic bismuth nitrate.* *Bismuth oxynitrate.*
Sugar.	Sugar.	Sugar.
Sulphate of atropia.	Sulphate of atropia.	*Atropine sulphate.*
Sulphate of beberia.	Sulphate of beberia.	*Beberine sulphate.*
Sulphate of copper.	Sulphate of copper.	*Cupric sulphate.*
Sulphate of indigo.	Sulphate of indigo.	*Sulphindigotic acid.*
Sulphate of iron.	Sulphate of iron.	*Ferrous sulphate.*
Sulphate of lime.	Sulphate of *calcium.*	*Calcium sulphate.*
Sulphate of magnesia.	Sulphate of *magnesium.*	*Magnesium sulphate.*
Sulphate of mercury.	*Per*sulphate of mercury.	*Mercuric sulphate.*
Sulphate of potash.	Sulphate of *potassium.*	*Potassium sulphate.*
Sulphate of quinia.	Sulphate of quinia.	*Quinine sulphate.*
Sulphate of soda.	Sulphate of *sodium.*	*Sodium sulphate.*
Sulphate of zinc.	Sulphate of zinc.	*Zinc sulphate.* *Zincic sulphate.*
Sulphide of ammonium.	*Sulphydrate* of ammonium.	*Ammonium sulphydrate.*
Sulphide of iron.	Sulphide of iron.	*Ferrous sulphide.*
Sulphur.	Sulphur.	Sulphur.
Sulphurated antimony.	Sulphurated antimony.	*Antimonious oxysulphide.*
Sulphurated potash.	Sulphurated potash.	Sulphurated potash.
Sulphuretted hydrogen.	Sulphuretted hydrogen.	Sulphuretted hydrogen.
Sulphuric acid.	Sulphuric acid.	Sulphuric acid. *Hydrogen sulphate.*
Sulphurous acid.	Sulphurous acid.	Sulphurous acid. *Hydrogen sulphite.*
Tannic acid.	*Tannin (syn.).*	*Tannin.*
Tartar emetic (syn.).	Tartar emetic (syn.).	Tartar emetic.
Tartarated antimony.	*Tartrate of antimony and potassium.*	*Potassio-antimonious tartrate.*
Tartarated iron.	*Tartrate of iron and potassium.*	*Potassio-ferric tartrate.*
Tartarated soda.	*Tartrate of sodium and potassium.*	*Potassio-sodium tartrate.*
Tartaric acid.	Tartaric acid.	Tartaric acid. *Hydrogen tartrate.*
Tartrate of potash.	Tartrate of *potassium.*	*Potassium tartrate.* *Dipotassic tartrate.*
Tin.	Tin.	Tin.
Valerianate of soda.	Valerianate of *sodium.*	*Sodium valerianate.*
Valerianate of zinc.	Valerianate of zinc.	*Zinc valerianate.*
Veratria.	Veratria.	Veratrine.
Verdigris.	Verdigris.	Verdigris.
Water.	Water.	Water.
Zinc.	Zinc.	Zinc.

Résumé.—The chief alterations in pharmacopœial nomenclature now proposed amount to this, that the compounds of the alkali-metals and alkaline-earth-metals instead of being named as hitherto on two distinct systems, should follow but one:—that instead of salts of potassium and of potash we should have salts of potassium only; instead of sodium and soda compounds, sodium only; and so with preparations of ammonium, lithium, calcium, magnesium and aluminium. This is a step in the direction of simplicity and permanency, and away from that of theory.

Synonyms.—Modern scientific chemical names, and the old dualistic names should, I think, be included as synonyms of the leading names in all Pharmacopœias. Many might be mentioned in addition to those in the third column: I have given a selection because the complete and consistent sets (for, unfortunately, there are more than one) would have occupied too much space.

Exceptional Alterations.—Constitutional objections to the name *acidum arseniosum* would be obviated by the old name *arsenicum album.* Some other bodies, apparently similar in constitution white arsenic, are alluded to in the text of the Brit Pharmacopœia as *anhydrous acids*—a most ambig ous and self-contradictory term; for the bodies i question either are acids or they are not acid whereas the term indicates that they are both—whi is impossible. The not very satisfactory word " a hydride" is coming generally into use for these bodi and this might be employed officially; but all jection would be avoided if the strength of the ph macopœial acids, which are mostly aqueous soluti of acids, were solely given in terms of real acid (th hydrogen salt). The correlative of the word *anh drous*, I would suggest, should be *hydrous*, neve *hydrate*; especially as the latter word is now gi to the members of a class of bodies derived fro water, as *hydrate of potassium*, and not to bod containing water. The compound from which *anh drous sulphate of copper* is prepared is *hydrous s phate of copper*, not *hydrated sulphate of copper.* view of the peculiar composition of *bichromate potassium* the first word of its name is most unsuitab and would be advantageously replaced by *red chr* *mate*, a name which would usefully distinguish the salt from *yellow chromate of potassium*. The names of the bismuth powders are not at present consistent with each other; if the one be termed *subnitrate* the other should be *subcarbonate*, not "*carbonate*." But these preparations and the similar compounds of copper and lead are normal rather than "sub" salts, containing oxygen in the place of an exactly equivalent quantity of the acidulous radical of the neutral salts, and might well be termed respectively *oxycarbonate of bismuth*, *oxynitrate of bismuth*, *oxyacetate of copper*, *oxyacetate of lead*; at all events the latter names would do good service as synonyms. Similar remarks apply to the *peroxhydrates of iron*. The prefix "sub" is most usefully and indeed indispensably applied in the case of calomel, which is the "lower" or under-chloride of mercury: it would be well if the meaning of the syllable could be always thus restricted to its etymological signification, and never again used in its old conventional sense. The names *tartarated antimony*, *tartarated iron*, *tartarated sodium*, I do not like at all. The sister terms *sulphurated antimony* and *sulphurated potash* are most happy, their utter vagueness fairly representing the nondescript character of the preparations. But *tartrate* (or *oxytartrate*) *of antimony and potassium*, *tartrate of iron and potassium*, and *tartrate of sodium and potassium*, are at least as definite in composition as the citric trio which are already honoured with the definite names (or, rather, with the old forms of the names) *citrate of bismuth and ammonium*, *citrate of iron and ammonium* and *citrate of iron and quinia*. "Prussiates" might now, I think, be relegated to the synonymic category. Instead of *Liquor Sodæ Effervescens*, B. P., which might possibly be confounded with *Liquor Sodæ*, I would prefer *Aqua Sodæ Effervescens*, and so with *Potash Water*. These are the prominent exceptional alterations to which I would draw attention. Their acceptance is not insisted on, nor is the list exhaustive. Allusion is made to them in the hope that discussion may show which names, on the whole, possess the greatest number of advantages. The alterations I do urge are those considered in the main portion of this paper, those of which I have already given a *résumé*.

In conclusion, I would state that the Lavoisierian names now proposed for use in medicine and pharmacy have already been freely adopted by many authors, and used as the leading nomenclature of my own and some other Manuals of Chemistry. I commend them to the medical practitioners and pharmacists of Europe, America and the Colonies.

DISCUSSION ON THE PAPER.

The CHAIRMAN said there was one remark in the paper which he considered of primary importance, viz. there should in all cases be a perfect understanding and unanimity in nomenclature between prescribers and dispensers, and if any system could be introduced which would increase that understanding, it would be an immense advantage to all parties. Another point of detail of considerable importance was the recommendation that different but analogous names should be distinguished by the prefix rather than the termination, on account of the inveterate habit amongst medical men of abbreviating pharmaceutical Latin. They could not very well cut off the beginning of a word, and it would be a great relief to dispensers if they could see by the first syllable what article was intended. Great difficulties had sometimes arisen in this matter, even with regard to calomel.

Professor FRANKLAND said there seemed to have sprung up two systems of chemical nomenclature, which had in many cases two distinct objects. The scientific chemist, in pursuing his investigations, was led to modify his nomenclature, and frequently also his notation; whilst, on the other hand, the pharmaceutist had to maintain as strictly as possible a uniform and intelligible system, for he quite agreed that nothing could be more mischievous than frequent or unnecessary changes of names in pharmacy. It was peculiarly fortunate, therefore, that Professor Attfield's scheme retained most of the old names, and only introduced changes where they had become almost indispensable. In the first place, there could be no doubt that the name ought to individualize the substance named; and he might be pardoned for pointing out one or two cases in the list where this rule was hardly complied with. In the case of sulphate of iron there were two substances which claimed that designation, the ferrous and the ferric sulphates, or the protosulphate and the persulphate. There might perhaps be a difficulty in the way of finding euphonious names for these two salts, but he would suggest the terms ferrosum and ferricum, instead of the word iron. There was also another point to be kept in view, viz. that, as far as possible, the nomenclature of applied chemistry should be consistent with that of chemistry exclusively scientific; and there were some instances where this consistency was somewhat departed from. At the head of the list was placed acetate of ammonium, and a little lower down acetate of morphia. Now, in two compounds so analogous, consistency required that you should be able to substitute one basic constituent for the other without altering your conception of the chemical composition; in other words, morphia ought strictly to represent ammonium, which it did not, seeing that it was the analogue of ammonia and not of ammonium. He would suggest, therefore, that the word morphium should be introduced, which he thought would lend itself as well as morphia to prescribers, especially as they would be sure to omit the termination in either case. But this would render the names of the compounds of these acids with natural alkaloids consistent with the names of the salts of the metallic elements and compound radicals such as ammonium. With regard to the naming of these alkaloids, he observed that Professor Attfield had adopted the system which was probably more in use amongst medical men than the opposite plan, to a great extent used by pure chemists, viz. the termination *ia* instead of *ine*. He did not know that any important objection could be urged against these names; and if the terminal *ia* be changed to *ium* in naming salts, it would entirely get rid of the difficulty with regard to that portion of the name representing a metallic element, or similarly constituted compound radical, which performed precisely the same functions in the different compounds. These appeared to him the only cases of inconsistency, and he was very glad to see that so slight an amount of alteration brought the system of pharmaceutical names so nearly into harmony with that of purely scientific chemistry.

Professor REDWOOD said that whenever the Pharmacopœia had been submitted to revision there had always been, more or less, alterations effected in the names of the substances described, and these changes had generally, although not always, been made with the view of assimilating them to those employed by scientific men. This had been the case in the last edition; the other object, and perhaps the more important, being to make each name more specific, and less liable to misconception. As such changes had been made on former occasions, so he had no doubt that whenever a new edition came out, the same thing would take place, and perhaps to a still greater extent, the foundation having been already laid by the introduction of the new notation, although it was not thought expedient then, on account of the unsettled state of the subject, to relinquish the old notation which was best understood. The old notation being retained, the old names were necessarily retained likewise, though the introduction of the new notation paved the way for such a change of names on a future occasion, as Professor Attfield had indicated. As to the time, however, when a new Pharmacopœia would be prepared it was impossible to say; but the average life of an edition having been about ten years, it would probably be some considerable time yet before another was brought out. He was not quite sure, therefore, that it was advisable to discuss the matter so long beforehand, though, were a new edition in course of preparation, he should advocate in the majority of cases precisely the changes proposed by Professor Attfield, being a change from the representation of salts of alkalies and alkaline metals to a representation of their being salts of the metals themselves, thus bringing about a consistency and uniformity in this part of the nomenclature with the other part which hitherto had not existed either in pharmacy or amongst scientific men themselves. This system had been adopted in labelling the specimens in their museum for some time; as there were two notations given in the Pharmacopœia, there was an old name which corresponded with the old notation, and a new name precisely the same as those which Professor Attfield proposed. If nothing more than this were suggested, he should have no doubt of the principle being adopted, and should himself go with the author of the paper entirely, and even to concur in what had been suggested by Dr. Frankland, that the alkaloids, morphia, quinia, and so on, should be changed to the better-known and more-easily-expressed names, morphine, strychnine, quinine and so on. Such a change he thought could be made without any inconvenience or difficulty, for these were the names generally used in commerce. Dr. Frankland had remarked that there would still be, in some cases, a want of distinctness, instancing sulphate of iron, which, he said, represented two salts which required to be distinguished from each other. Now in the present Pharmacopœia both were ordered, and the names there used were, as he conceived, sufficiently distinct. The rule had been never to make a name longer than necessary to its being perfectly understood; therefore, the term sulphate of iron was applied to the ferrous sulphate or protosulphate, which was rather a long name, and, perhaps, a little theoretical; and the ferric sulphate was designated by the prefix *per*, without which the name could not be written, so that there could be no ambiguity. Whilst, however, he agreed with much that had fallen from Professor Attfield, and especially with the principles he had laid down, he could not concur in all his proposed changes, though the number to which he objected was but small. In the first place white arsenic was suggested in place of arsenious acid; and it was suggested that the term 'acid' should not be used to designate a body which contained no hydrogen, as such were not really acids according to modern views. If arsenious acid of pharmacy were the only body of the kind used, or likely to be used, in medicine, he did not know that there would be any great objection to the change, although he preferred the older term as being more distinctive, for the name "white arsenic" might be applied to arsenic acid as well as to other compounds of arsenic, while arsenious acid was not so liable to misconception. But there were other bodies which stood in precisely the same category, for instance, chromic acid, which was used as an escharotic; and if the term 'acid' must not be applied to arsenious acid, neither should it be applied to chromic acid. What then could it be called? Chromic anhydride would be a proper term, but he should not be prepared to import it into pharmacy. It was unsatisfactory, for even scientific chemists differed upon it, and it was uncertain how long it would maintain its position and it would be very unwise, therefore, to introduce i[illegible] pharmacy, where, above all things, permanence was required. No one could have any doubt as to what was meant by arsenious acid or chromic acid, and, therefore, although the terms might be open to a little objection theoretically, he thought for practical purposes they were the best that could be adopted at present. Exception had been taken to the term bichromate of potash, and he only wondered that the proposed change to red chromate of potash had not been made before; but consistency would require that a like change should be made in the cases of bicarbonate of soda and bicarbonate of potash. These names, however, were, he thought properly retained, being so well understood, although they were not quite satisfactory theoretically. Then, again, there was the term black sulphide of antimony, which it was proposed to substitute for the ordinary name, black antimony. In his opinion brevity was a very important consideration and he was quite satisfied with the old term, which had been thoroughly understood for generations both in commerce and in pharmacy. Then came the substances subnitrate of bismuth and carbonate of bismuth. Professor Attfield said both these were of analogous composition, and that if one was called subnitrate, the other ought to be called subcarbonate. Theoretically he should be disposed to agree with this view, but, practically, he thought it better to leave the names as they stood. The subnitrate was in the former Pharmacopœia called nitrate, but it was necessary to distinguish it from the crystalline salt which was acid in its reaction, and the prefix *sub* was used for that purpose. With regard to the carbonate of bismuth, although undoubtedly it was an oxycarbonate, yet, as there was no other carbonate of bismuth with which it could [illegible] confused, he should not be in favour of introducing a longer name when the short one was sufficiently explicit. The same theoretical objection would apply to carbonate of lead and carbonate of zinc, both of which were oxycarbonates, but no proposition was made to alter them. Chloride of tin, which was ordered as a reagent, was proposed to be changed to stannous chloride, but he was not prepared to adopt that as the only [illegible] in which this particular kind of nomenclature should be introduced. With the citrate of iron and ammonium, and the citrate of bismuth and ammonium, he would include the tartrates, which Professor Attfield took great objection to, proposing to substitute tartrate of iron and potassium for tartarated iron. The latter name was adopted as being shorter and more convenient [illegible] as than the full name, and thus the terms tartarated antimony and tartarated iron arose. They were not given as scientific names, but nevertheless they did indicate the composition, because both were tartarated products. Just as chlorinated lime was lime treated with chlorine, so the iron and antimony were treated with tartar. However, he should not object to the names tartarated iron, etc. being changed, but not for those suggested. He should prefer going back to the old names, which were familiar to all, and sufficiently explicit and euphonious, viz. ammonio-citrate of ir[illegible] potassio-tartrate of iron, which names were still used in commerce. As for the termination in *um*, which made the name so much more of a mouthful, he was quite sure that neither commercial men nor pharmacists would ever use it. Potassio-tartrate of antimony again was the old name for emetic tartar; and the new preparation called citrate of bismuth and ammonium might, in like manner, be called ammonio-citrate of bismuth. Citrate of iron and quinia, or quinine, as it was commonly called, would then require to be altered for the sake of uniformity. He did not like ammonio-quiniate of iron and should therefore suggest ferro-citrate of quinia or quinine. There was only one other case he wished to refer to, and that was where it was suggested that the familiar name hydrated peroxide of iron should be changed to peroxydrate of iron; he was not at all favourable to such a change, thinking the old name far preferable.

Professor Odling said Professor Attfield had produced a very useful paper, and upon the whole had steered tolerably clear of difficulties. He was happy to find that in most instances where he should venture to differ from the conclusions arrived at, he had been forestalled by his friend Dr. Redwood; but at the same time he could not agree with all the remarks of the latter. With regard to the propriety of discussing such a subject at the present time, and to the probability of a new edition of the Pharmacopœia being speedily issued, he thought such discussions as the present were always useful, as they opened the way for the time when action became necessary, however long it might be deferred; and looking to the great merits and completeness of the present edition, he had no doubt that a long time would elapse before another was called for. He had been somewhat surprised at the delicacy which Dr. Redwood felt about introducing the term "white arsenic," but he was quite satisfied shortly afterwards on hearing his remark on "black antimony." Professor Attfield, he thought, had shown great discretion, both in the new names he had proposed and in regard to the old ones which he thought should be discontinued. He quite agreed that names involving the use of abbreviated Latin or Greek numerals were to be avoided as far as possible, if not altogether, and the use, where necessary, as distinctions of red and yellow, where such-like definitions obviously applied, was much to be recommended, as, for instance, green iodide and red iodide, red prussiate and yellow prussiate, yellow chromate and red chromate; for these names had at any rate the element of stability, as there was no reason to suppose that the various salts would alter their colour within the next generation or two. He also concurred in what had been said as to the use of the word 'acid.' It was well known that this term had been applied for a long series of years to two distinct classes of compounds,—those which were ordinarily bought and sold under that name, such as oxalic, citric or tartaric acids, and also to the substances which were considered to exist within these bodies, and to give them their characteristic properties. Now it was obvious that the same name should not be given to two totally distinct substances or even be applied to bodies belonging to different classes. If it were the case, which he believed it was, that the body called "white arsenic" belonged to an entirely different class of bodies from those to which the word 'acid' was now almost universally restricted by chemists all over Europe and in America, it was a pity that it should not be distinguished and called as was suggested, "white arsenic," rather than arsenious acid. Originally it would have been but a matter of little consequence to which class the word 'acid' should be applied, but, inasmuch as it was now applied by general consent to salts of hydrogen, it would be better to restrict it to that. Although, as Dr. Redwood had said, the term arsenious acid was perfectly definite, there being no true salt of hydrogen recognizable, and although it was not always necessary in pharmacy to give strictly accurate names, yet it was undesirable to suggest by similarity of name a similarity of character where such had no existence. The staple recommendation in Professor Attfield's paper was the substitution of the metallic names potassium, sodium, calcium, for the alkaline or earthy names, potash, soda and lime, and, on the whole, he thought this recommendation a wise one. At the same time he was not prepared to go quite so far as Professor Attfield had gone with regard to the history of that class of names, or with regard to the importance and necessity of the change. He was quite aware of the fact that in the writings of Lavoisier and his colleagues, sufficient would be found to warrant Professor Attfield's proposition, but there were also to be found there a large number of remarks of a totally different character and tendency. It would be found in reality that the habit of expressing the constituents of salts as binary compounds, did not originate until long after the Lavoisierian period; in fact, not until the days of Davy and Berzelius, when the electro-chemical theory was founded. It would be found that the Lavoisierian nomenclature could be traced, in a great measure, to De Morveau, and his older names were of a different character. His notion was not so much to define the composition of bodies as to define their chemical nature; what were now called sulphates he called "vitriols," and what we call nitrates, he called "nitres," differentiating them as iron vitriol and copper vitriol, and he might have gone on to say potash vitriol, and so on; as he did with the nitres, for he spoke of potash nitre and soda nitre. He did not imply by this that the former was a compound of nitric acid on the one hand with potash on the other, but that it was a substance of one particular kind, which was called a nitre or a vitriol or a fluor, as the case might be, and that the varieties were expressible by the words *de fer*, potash, etc. This was well seen in the older Latin names; for instance, what is now called chloride of sodium was called indifferently muriaticum nitratum or nitratum muriaticum, which did not associate the idea of the constituents, but rather endeavoured to indicate clearly the nature of the substance or class of the substance without expressing its ultimate composition. The idea of ultimate composition, although it was to be found in Lavoisier, was rather superadded by the results of the electro-chemical theory. Under these circumstances, therefore, he should not hesitate to use the term iodide of potash, meaning that the salt was the potash variety of iodide; still, on the whole, it was objectionable that one set of potash compounds should be called potash, and the word potassium used in other cases. Then, again, with regard to ammonium and ammonia; ammonia was such a many-faced substance that it was difficult to say which should preponderate. When the salts were analogous to those of potassium, and bore a mineral character, the word 'ammonium' might obviously be used; but when they were related to the class of amides on the one hand, or seemed more nearly related to alkalies on the other, he was not quite sure whether the balance of advantage was not the other way. At any rate, this was a point which should be left open, and the words ammonium and ammonia might be used indifferently. Again, in some of these longer names, he thought Professor Attfield had striven to arrive at that which he himself reprobated, viz. strict scientific accuracy where it was not required, and some of these names he did not think particularly fortunate; for instance, oxyhydrate of iron magnetic, peroxyhydrate of iron and perhydrate of iron moist. Strictly speaking, the last was not chemically accurate, inasmuch as it was not a hydrate which was a hydrate alone; the compound was partially a hydrate and partially an oxide; it did not correspond with a perchloride by substituting for each atom of chlorine an atom of hydroxyl. If accuracy were attempted it should be carried out, or the whole scheme would call for further revision. Then came the question of the salts, which it was proposed to call oxyacetate of copper and lead, oxynitrate of bismuth and oxycarbonate of bismuth. In these cases he much preferred the word *sub*, because, at any rate, it was not pretentious, and did not profess to give the exact definition of the body, while some of these names were scarcely accurate. He was not at that moment prepared to say whether oxyacetate of copper was strictly correct; but in some cases the salts were really hydroxyacetates, and if a name of that kind were introduced at all it might as well be strictly accurate. Under the circumstances, however, he should repudiate strict accuracy, and would suggest the use of the prefix *sub* where necessary for distinction. Where substances belonged to two different classes it would be sufficient to distinguish one class only; for instance, in the majority of cases it would be sufficient to say sulphate of iron and persulphate, but if it were not sufficient there would be no difficulty in using the word protosulphate. In the case of chloride of mercury this would hardly, perhaps, suffice, and in that case the word *sub* might judiciously be used to distinguish the sub-chloride, although the word *sub* would then be used not in a strictly analogous sense to that in which it was applied to acetates and carbonates, basic salts, but would be applied in an exceptional manner to an exceptional substance, to fulfil an exceptional purpose. One other remark with reference to the modification of bodies by means of suffixes or affixes. Such terminations as mercur*ous* and mercur*ic* lent themselves very well to express the composition of bodies, much better indeed than the prefixes *per* and *proto*, but yet the argument seemed a very fair one which had been raised by Professor Attfield and the President, that for pharmaceutical purposes these names were scarcely practicable. In the two sulphates of iron, the persulphate and protosulphate, it was scarcely possible to distinguish between the sulphate element of the two by any mode of reaction whatever, and thus the part which was distinguished in name was hardly distinguishable in fact; whereas the part not distinguished in name—the iron—it was well known was in the two states known as ferrous and ferric, more dissimilar than the two metals nickel and cobalt, or even than nickel and iron. Therefore that portion was altered in name which was scarcely found to be altered in any way in its properties, while those things remained the same in name which were really most distinct. He could not therefore approve of such names for chemical purposes; but still, considering the difficulties which had been raised with regard to the practice which physicians adhered to of curtailing names, he did not see that in pharmacy any better plan could be adopted.

Dr. Quain said he had listened to both the paper and the discussion with the greatest pleasure. He had come not to take any part in the discussion, but simply in a conservative capacity, intending, if he heard any proposals for rashly changing names, which he was very happy to state he had not, humbly to protest against it, for nothing was more deprecated by physicians than to find the names of the materials with which they worked, altered, whilst the materials themselves remained the same. It might be true that "the rose would smell as sweet by any other name," but if the same drug were presented to a patient by a different name, in many cases they would not believe it had the same action. And not only so, but when scientific chemists were constantly, and of necessity he admitted, changing the names of bodies in accordance with the views they formed of their composition, it was sometimes very hard for practical physicians to keep up with them. As had been said repeatedly, names should be short, clear and expressive; and if they were so, and persons knew what was meant, whether it was, for example, black antimony, or tartarated iron, these names were just as good as if they were called by the long high-sounding titles that had been mentioned. For his own part, he should say the simpler the name the better, and if possible, whenever a new edition of the Pharmacopœia was issued, he hoped the names would be made still simpler and more expressive, always keeping in view that a minimum of change was desirable. With regard to the time when a new edition might be looked for, he hoped it would be a long time yet; and considering the great favour with which the present edition, prepared under the supervision of Dr. Redwood, had been received, he saw no reason to believe it would be soon superseded. At the same time he thought it advisable that any proposed changes of names should be brought forward and discussed early, in order that there might be less difficulty when the time for a new edition did come.

Mr. Groves said it was the common practice of prescribers to write both diluted hydrocyanic acid and diluted hydrochloric acid as *acid hydroc.*, which sometimes occasioned a difficulty. He suggested the propriety of going back to the old name prussic acid. *Acidum prussicum dilutum* was perfectly definite, and expressed no theoretical notions.

Dr. Redwood thought the great objection to that would be that it was too readily understood by patients. The same difficulty had been urged in other cases.

Mr. Groves said he believed the public were getting so wide awake that they recognized hydrocyanic acid as easily as prussic acid.

Professor Attfield, in reply to the observations which had been made, said his paper was divided into two distinct portions; five-sixths related to the alteration in the names of salts of the alkali-metals and alkaline earth-metals, and the other sixth to certain exceptional alterations, and it was peculiarly gratifying to him to find that his remarks on the nomenclature of the alkaline and earthy salts were pretty much confirmed by every speaker. Most of the exceptional alterations had been introduced with the view of starting a discussion on certain unsatisfactory names; he was quite willing to leave several of these names as they stood.

The Chairman said he could not help thinking he had seen during the last few years more or less inclination to call things by their wrong names. Certain preparations had been called by definite chemical names which did not really answer to their composition, and thus a practice had grown up which was a disgrace to pharmacists, and the alteration of which would certainly be attended with great advantage.

EXTRACTS FROM ARTICLES ON THE PAPER IN JOURNALS OF MEDICINE AND PHARMACY.

Medical Times and Gazette.

When the first edition of the British Pharmacopœia made its appearance, so little permanent change in our chemical nomenclature was anticipated, that the old system was retained without a word, notwithstanding all the difficulties it involved, especially that of dealing with certain substances as direct compounds of elements—chloride of sodium, for example—whilst others, say the sulphate of the same base, were supposed to be made up of the oxide of the metal sodium and sulphuric acid. By the time the second edition appeared, the new ideas had made such progress that the system of notation they implied was placed, not exactly on an equal footing with the old, but at all events was fairly recognized. This, in itself, was a very great thing. Had the old plan been solely retained, it is quite certain that the new system would not have been so generally adopted by medical teachers, for in their eyes chemistry must be regarded, not alone as an absolute science, but also in its application to medicine; chief among these, of course, being the chemistry of the Pharmacopœia. But whilst the new notation was employed, the old nomenclature was exclusively retained, and carbonate of soda and nitrate of silver were still spoken of as having ostensibly the same constitution, although soda was the oxide of sodium, and there was no pretence that the oxide constituted the base in the silver salt; this anomaly remains.

Professor Attfield has recently been drawing attention to this fact, and also to the expediency of having the pharmacopœial nomenclature as fixed as possible. Now, as sweeping revolutions are no more desirable in nomenclature than in politics, it becomes a matter of moment to search out how best to adapt the pharmacopœial names to the requirements of science, and so give them a more permanent character, whilst making the change as slight as possible.

For many reasons, it is desirable that scientific nomenclature should be an exact reflex of our scientific status, and, viewing the matter solely in this light, that names should change with our conceptions of things; but it is evident that such constant changes are most objectionable in pharmacy. There is the notorious example of the chloride of mercury, which one man would read as calomel, another as corrosive sublimate, according to his education, and on him it would depend whether the patient was poisoned, or the physician's prescription rendered inoperative. On the other hand, in the olden days, when chemical composition was unknown and uncared for, a system of trivial names were in use, which were exceedingly useful, though altogether unscientific. Our forefathers talked of Mindererus' spirit, of sal volatile, of Glauber's salt, of pearl ash, of sal de Duobus, sweet spirit of nitre and the like; these there was no possibility of mistaking, but, because they gave no clue to composition, they were gradually set aside as chemical remedies multiplied and it became desirable to use names which carried with them some idea of composition and properties. Between these two extremes we are, according to Professor Attfield, to seek the happy medium; and the changes he proposes to effect are substantially the substitution of the words "potassium, ammonium, sodium, lithium, calcium and magnesium," for "potass, ammonia, soda, lithia, lime, and magnesia," respectively. Others there are, but these are the most important. The only instance in which he would exactly assimilate the proposed alterations to those terms now in general use is in the case of chloride of tin, which he proposes to call "stannous chloride." Why in this instance he should depart from his general principles we are at a loss to know. Another sensible proposal he makes is, that where one compound of a metal is to be distinguished from another, it should be by an initial syllable, and not by a terminal one; thus he would say "pernitrate of mercury" instead of "mercuric nitrate." This, considering the universal tendency to abbreviation in prescribing, we hold to be most wise, although a departure from the common custom of chemists. Dr. Attfield's *résumé* so well expresses his ideas, and so clearly exposes some of our present inconsistencies, that we venture to append it in full, and to commend it to our readers.

"The chief alterations in pharmacopœial nomenclature now proposed amount to this, that the compounds of the alkali-metals and alkaline-earth-metals, instead of being named as hitherto, on two distinct systems, should follow but one; that instead of salts of potassium and of potash we should have salts of potassium only; instead of sodium and soda compounds, sodium only; and so with preparations of ammonium, lithium, calcium, magnesium and aluminium. This is a step in the direction of simplicity and permanency, and away from that of theory."

THE BRITISH MEDICAL JOURNAL.

In an able paper read before the Pharmaceutical Society on Wednesday evening, Dr. Attfield discussed a subject of much medical interest, the alteration in pharmacopœial nomenclature necessitated by the advancement of chemistry. Within the last few years, the views hitherto prevailing of the constitution of matter have undergone radical alteration. There is no small difficulty in adopting for the Pharmacopœia chemical names, explicit, easily understood, and unambiguous, and yet consistent with accepted chemical theories taught in the schools. Dr. Attfield discussed the history of the chemical names employed in the Pharmacopœia, historically, and from the modern stand-point. We need not follow him through this part of his address, in which the facts will have been anticipated by many of our readers, but may refer to the current number of the PHARMACEUTICAL JOURNAL, in which it will appear at length, but will only state the conclusions at which he arrives.

The chief alterations in pharmacopœial nomenclature which he proposed amounts to this, that the compounds of the alkali-metals and alkali-earth-metals, instead of being named as hitherto on two distinct systems, should follow but one:—that instead of salts of potassium and of potash, we should have salts of potassium only; instead of sodium and soda compounds, sodium compounds only; and so with preparations of ammonium, lithium, calcium, magnesium and aluminium. This is a step in the direction of simplicity and permanency, and away from that of theory.

Modern scientific chemical names, and the old dualistic names should, he thinks, be included as synonyms of the leading name in all Pharmacopœias.

Dr. Attfield states that the Lavoiserian names now proposed have already been freely adopted by many authors, and used as the leading nomenclature of his own and some other manuals of chemistry. We join him in commending them to the consideration of medical practitioners and pharmacists of Europe, America, and the Colonies.

THE LANCET.

The ever-changing nomenclature of the chemist and pharmacist is a source of terrible perplexity to the student, and indeed to the practitioner also. Professor Attfield comes to the rescue with a very good suggestion, that the compounds of the alkali-metals and alkaline-earth-metals, instead of being named as hitherto on two distinct systems, should be named on one; that, for example, instead of salts of potassium and of potash, we should only have salts of potassium; and so with sodium and soda, etc., in like manner. Where similarity between two salts is indicated by identity in all but one of the syllables of their names, that syllable should be at the beginning and not at the end of the word, where it would be liable to be omitted by the prescriber; hence he prefers the terms subchloride and perchloride of mercury in place of mercurous and mercuric chloride.

THE PHARMACEUTICAL JOURNAL.

It is satisfactory to find that Professor Attfield's suggestions for the revision of the chemical nomenclature of our Pharmacopœia do not involve any violent changes, but that, while seeking to attain uniformity consistent with chemical science, those suggestions are conservative in their tendency, and influenced by the sound principle that for medical and pharmaceutical purposes it is more important that names should denote things rather than our ideas as to the nature or constitution of those things. Moreover, the simplicity of the plan by which uniformity is to be attained in the designation of chemicals in pharmacy is so great as to constitute a strong argument in favour of Professor Attfield's proposals being generally adopted, and on this ground alone we are not surprised to find they have met with general approval both by the medical men and chemists who took part in the discussion and by the medical press. The few points in regard to which there were differences of opinion were only of minor importance, and would probably be settled without difficulty by having regard to the essential requisites of a name for medical and pharmaceutic purposes, and by making the possession of chemical propriety subordinate to them.

We should be glad to see the main features of Professor Attfield's plan adopted, not only in the British

Pharmacopœia, but also in that of the United States, as well as the Pharmacopœias of Europe, so as to secure the very great advantage of a permanent and uniform nomenclature.

The Chemist and Druggist.

Change in or of nomenclature appeals in a totally different manner to two classes, who might be supposed to have identical interests;—for interests read sympathies, and the case is plain—these two are scientific chemists working in a laboratory and pharmacists employed behind the counter. To the first nomenclature is a system of accurate labelling, each name is the expression of some theoretical truth; therefore, this nomenclature has changed, will change, and must change—for it follows in the immediate track of discovery. A chemist would gladly upset his whole nomenclature to-morrow, if the change represented to him more accurately what he conceives to be the abstract truth. But with the pharmacist it is not so; he desires a certain set of names that may clearly, intelligently and with sufficient accuracy, represent chemical substances; he does not care that such names should convey an intimate exposition of their nature and composition, and thus, to a large extent, he is independent of theory.

Let it not for a moment be supposed that any slight is passed on synonyms and the chemical nomenclature of science. Far otherwise; the beauty of such terms as mercurous chloride and mercuric chloride cannot be overestimated. Compound names, such as potassium iodide, lead acetate, ammonium bromide, and an array of carbonates, acetates and chlorides appeal to our common sense. These will remain, and we are at full liberty to adopt them; but there are a mass of others which must follow inevitably the fortunes of the next successful investigation in abstract chemistry. Simpler, if possibly less accurate, terms will suit our purpose, and will prove an advantage as far as popular intelligence is concerned. Hence, with regard to the adoption of these chemical names, Professor Attfield's first main position is, they would cause embarrassment, they would not be generally intelligible. *Non possumus.*

Thus we get to a second point—the old names are not sufficiently descriptive; chemical terms are not practically useful. Let us fall back on pharmacy, and from it print our labels.

But Professor Attfield, with extreme modesty, has omitted one capital argument. Our daily acquaintance with chemical substances comes to us in a stereotyped and traditional manner, not merely in Latin, but in conventionally contracted Latin. One moment's observation will convince the reader that while the proposed names may be read off in correct Latinity without a shadow of trouble, chemical nomenclature cannot submit to the same ordeal. Take, for instance, carbonate and bicarbonate of sodium. Latinize these in contracted form:—

I. Sod. Carb.
II. Sod. Bicarb.

Would it not task the ingenuity of our schol render their synonyms in contracted Latin?—

I.

Disodic Carbonate.

II.

Acid Potassium Carbonate.
Hydrogen Potassium Carbonate.
Mono-potassic Carbonate.

Professor Attfield has himself alluded to the fact that the contracted Latin of the synonyms would lead to considerable ambiguity, thus—

Mercurous Chloride = Calomel = Hyd. Chlorid
Mercuric Chloride = Corrosive Sublimate
= Hyd. Chlorid.

The contractions are the same.

Finally, in what manner would the physician convey his directions in an intelligible manner respecting remedial agents such as these?—

Hydrogen Acetate *v.* Acetic Acid, Ethyl Hydrate *v.* Alcohol, Ammonium Hydrate *v.* Ammonia, Mercuric-ammonium Chloride *v.* Ammoniated Mercury, Hydrogen Benzoate *v.* Benzoic Acid, [a]Acid Potassium Carbonate, [b]Hydrogen Potassium Carbonate, [c]Mono-potassic Carbonate *v.* Bicarbonate of Potassium, Hydrogen Borate *v.* Boracic Acid, Hydrogen Carbolate *v.* Carbolic Acid, Dipotassic Carbonate *v.* Carbonate of Potassium, Methenyl Chloride *v.* Chloroform, Ethyl Oxide *v.* Ether, Propenyl Alcohol *v.* Glycerine, Calcium Orthophosphate *v.* Phosphate of Calcium, and Disodiohydric Phosphate *v.* Phosphate of Sodium.

The list might be indefinitely extended, but the whole of these examples are extracted from Professor Attfield's own illustrations to his lecture. Clearly, he has proved his point, and shown that chemistry and pharmacy, though branches of the same science, have distinctive characters, and that it will be for the mutual advantage of both to adopt a nomenclature of their own.

ADDITIONAL REMARKS BY THE AUTHOR.

The discussion on this paper at a recent Pharmaceutical Meeting extended so much beyond the usual hour of adjournment that I could only express my appreciation of the support the chief suggestions received; I would now reply to one or two of the points raised, and make some additional observations.

The Proposed System of Pharmaceutical Nomenclature.—It will be remembered that my leading proposition was, "that the compounds of the alkali metals and alkaline earth metals, instead of being named as hitherto, on two distinct systems, should follow but one; that instead of salts of potassium and potash we should have salts of potassium only; instead of sodium and soda compounds sodium only; and so with preparations of ammonium, lithium, calcium, magnesium and aluminium." The eminent chemical and pharmaceutical authorities who spoke on the occasion—Professors Frankland (President of the Chemical Society), Odling, and Redwood—entirely concurred with this suggestion, and I have now the gratification of stating that the leading weekly medical periodicals—the *Lancet*, *Medical Times and Gazette* and *British Medical Journal*—have given their support to the plan; in short, that no objection to it has at present been raised.

With respect to the question of Professor Frankland as to the method of distinguishing between similar salts of one metal, *e. g.* the two sulphates of iron, I would, whenever such a course may become necessary, add to the name a word or an initial syllable recalling some prominent difference in the properties of the two compounds: thus, *green* sulphate of iron and *per*sulphate of iron; these names are, to the pharmacist, more familiar and distinctive than the more chemically useful names Professor Frankland proposes, "sulphate of ferrosum" and "sulphate of ferricum;" moreover, I fear that physicians in writing prescriptions would contract both the latter to *fer. sulph.* Again, there are two chlorides of tin, stannous chloride and stannic chloride, neither used in medicine, and only as analytical reagents in pharmacy; hence they might well be distinguished pharmaceutically as well as chemically by the names just given; or if it be undesirable to introduce this one exception to the general principle advocated, the compounds might be termed respectively *solid* chloride of tin and *liquid* chloride of tin, or *crystalline* chloride of tin and *per*chloride

With regard to the history of the chemical nomenclature at present employed in Pharmacopœias, I have said that it was only "mainly" devised by Lavoisier, and believe that I have followed general custom in speaking of it as the Lavoisierian method; at the same time there can be no doubt, as indicated by Professor Odling, that it was gradually developed by the contributions of many minds. "The system of nomenclature—the joint production of Lavoisier, De Morveau, Berthollet and Fourcroy—published in 1787 under the title 'Méthode de Nomenclature Chimique, proposée par MM. de Morveau, Lavoisier, Berthollet, et de Fourcroy,' still continues the foundation of the language which, with many variations in minor points, is employed by all chemists at the present day." (Professor G. C. Foster's article on "Nomenclature" in Watts's 'Dictionary of Chemistry.') I may add that the system I propose for adoption in medicine and pharmacy was employed in 1858 in Conington's 'Handbook of Chemical Analysis,' is much used in the dictionary just cited, is the leading nomenclature of the 'Manual of Chemistry' I first published in 1867, has since been included in the labels of the chemical specimens in the Pharmaceutical Society's museum, and for some years has been placed on the labels of at least one firm of English chemical manufacturers (Messrs. Hopkin and Williams). Hence it works well in practice. For scientific purposes it is scarcely sufficiently comprehensive; and for two or three years I have hesitated in proposing for applied chemistry a system of names not identical with the nomenclature of pure chemistry. As, however, there is still no indication that the two or three systems of names used by teachers of pure chemistry will ever merge into one, and as it would be impossible to employ more than one in applied chemistry, I do not think I act disloyally to, or influence otherwise than beneficially, the science I follow by selecting and adapting one of the current systems for permanent employment in medicine and pharmacy.

The Exceptional Alterations.—I adhere to the opinion that the old and perfectly well-understood name *arsenicum album* is preferable to *acidum arseniosum.* The body is not an acid in the sense in which every other acid in the Pharmacopœia is an acid, and, therefore, should not officially be termed an acid. Such irregularities are prejudicial to the interests of chemistry and confusing to students. As for other anhydrides, it will be time enough to discuss their nomenclature when good indications appear of their official recognition. Chromic anhydride, or chromic caustic, might be termed red caustic, or red oxide of chromium. In the cases of the subcarbonate and subnitrate of bismuth, and the subacetates of copper and lead, it has been considered by Professors Redwood and Odling that the prefix "sub" is not well substituted by "oxy," and I am disposed to agree in this opinion. Indeed, I have never strongly urged the adoption of the terms oxycarbonate, oxynitrate, oxyacetate, oxyhydrate as leading names, but have suggested that they would be highly serviceable as synonyms; I would now thus restrict the suggestion, and include in it the hydrato-carbonates of lead, magnesium and zinc. With respect to the "scale" preparations and some substances similarly named (tartarated antimony, tartarated iron, tartarated soda), I am glad to find that Professor Redwood coincides with me in thinking that the existing names admit of improvement. I have suggested that alterations in these names should go so far as to make them consistent with the corresponding names of the three citrates. My only objection to the six names my colleague mentioned (ammonio-citrate of bismuth, ferro-citrate of quinia or quinine, etc.), is that similar compound words (aceto-nitrate, methyl-ethyl) are employed in chemistry for the express purpose of suggesting intimate union between the bodies whose names are included in the compound word, no such union being pretended to exist in the case of these scaly and other preparations. There are some advantages to set against this objection, at the same time it is desirable that the nomenclature of chemistry and pharmacy should harmonize as much as possible. As for the names of the alkaloids, the balance of usage is in favour of "ine," instead of "ia," as the terminal syllable of the words; thus, morphine, quinine, strychnine,—not morphia, quinia, strychnia.

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